

Advanced Modeling of Ramp Operations including Departure Status at Secondary Airports, Phase I

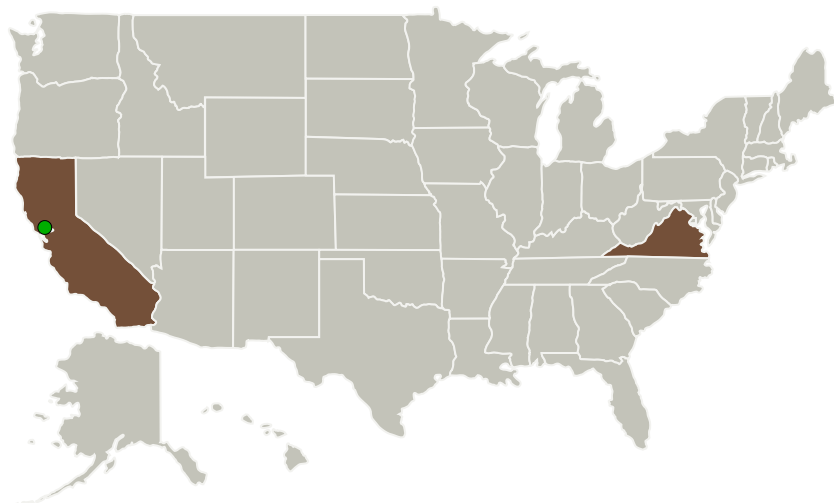
Completed Technology Project (2015 - 2015)



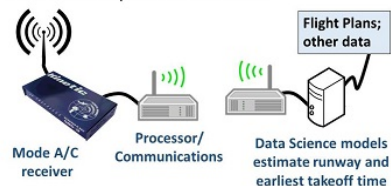
Project Introduction

This project addresses three modeling elements relevant to NASA's IADS research and ATD-2 project, two related to ramp operations at primary airports and one related to departure status at secondary airports. Departure scheduling requires departure status information from secondary airports that lack surface surveillance. We propose a method using aircraft transponder activation and data science modeling to estimate earliest takeoff time and runway. Fast-time simulations of IADS concepts require models of how ramp controllers manage near-gate aircraft movements; and how flight operators will interact with collaborative departure scheduling concepts. We propose to develop a model, with defined interfaces to be usable in any NASA simulation platform, for conflict/congestion-free aircraft movements in alleyways, coordinated to allow efficient, simultaneous movements. We will also offer a model for flight operator's swapping gate delays to free needed gates and prioritize their schedules. These models are also relevant to NASA's SARDA and SMART NAS projects. We will document the model designs, deliver all source code, and, in Phase 2, publish models under and Open Source license.

Primary U.S. Work Locations and Key Partners



Remote Airport Departure Status Through Aircraft Transponder Activation



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Organizations Performing Work	Role	Type	Location
Mosaic ATM, Inc.	Lead Organization	Industry	Leesburg, Virginia
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Virginia

Project Transitions

June 2015: Project Start

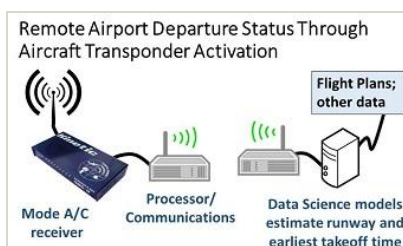
December 2015: Closed out

Closeout Summary: Advanced Modeling of Ramp Operations including Departure Status at Secondary Airports, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image(<https://techport.nasa.gov/file/138784>)

Images



Briefing Chart Image

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(<https://techport.nasa.gov/image/135154>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Mosaic ATM, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

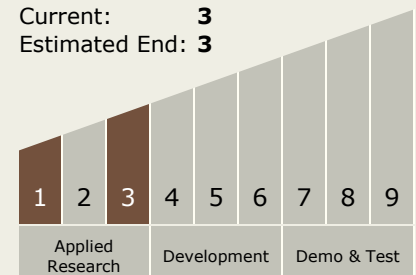
Carlos Torrez

Principal Investigator:

Stephen Atkins

Technology Maturity (TRL)

Start: **1**
Current: **3**
Estimated End: **3**



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Technology Areas

Primary:

- TX01 Propulsion Systems
 - └ TX01.3 Aero Propulsion
 - └ TX01.3.1 Integrated Systems and Ancillary Technologies

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System